CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NUMBER 89-051

SITE CLEANUP REQUIREMENTS FOR:

SOLVENT SERVICE INC.
1021 BERRYESSA ROAD
SAN JOSE
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. **SITE DESCRIPTION** Solvent Service Inc. (SSI) operates a treatment, storage, and disposal facility at 1021 Berryessa Road, San Jose, Santa Clara County. The facility treats and reclaims industrial solvents and corrosive liquids on a three acre site.

2. SSI is hereinafter referred to as a discharger because of the releases of hazardous wastes that have occurred at its site. SSI is also a Responsible Party under the State Superfund (Sec. 25356, CA H&S Code) and under the Federal Superfund (CERCLA/SARA). This order is intended to approve the workplan and outline the tasks required for completion of the remedial investigation/ feasibility study as required by CERCLA/SARA.

3. **SITE HISTORY** SSI has been operating since 1973. Since 1983, SSI has been investigating the extent of soil and groundwater pollution due to past leaking underground storage tanks and waste handling procedures.

4. **HYDROGEOLOGY** The site is underlain by three distinct hydrogeologic units. SSI has also identified ancestral stream channel deposits along the southwestern margin of the site.

   Aquifer A is an unconfined, low permeability aquifer that occurs from the ground surface to a depth of 20 to 25 feet (50 to 75 feet MSL) and is locally dewatered. It consists of sandy silts, clay, and a thin, continuous poorly sorted sand layer at its base. Aquifer A is underlain by a 6 to 16 foot thick clay layer which may impede vertical downward migration of groundwater.

   The Zone B/C consists of lenses of sands, silts, and clays. It extends to 50 feet below the upper clay layer (0 feet MSL) and appears to be laterally continuous across the site. Water levels in this zone are 1 to 2 feet lower than Aquifer A but little or no vertical leakage is believed to be occurring. A clay layer, 2 to 10 feet thick, occurs at the base of Zone

B/C.

The third zone, Aquifer D/E, consists of an upper member- a thick sequence of silts and sands underlain by a thin clay layer- and a lower member- two sand layers separated by a 2 to 5 feet thick silt layer. A clay layer occurs at the base of the zone, 150 feet below the ground surface (-75 feet MSL). Zone D/E is believed to be very permeable and was used historically for domestic water supply.

5. **ADJACENT FACILITY** Chevron USA, Inc. (Chevron) operates a transfer station at 1020 Berryessa Road in San Jose (Figure 1). The transfer station delivers refined motor fuels throughout the San Francisco Bay Area. The site is southeast of SSI and in the upgradient groundwater direction, across Berryessa Road. Soil and groundwater sampling results from the Chevron site indicate that a petroleum hydrocarbon release has occurred at the Chevron site and that groundwater pollution has migrated westward beneath SSI.

6. **SOIL INVESTIGATION** During 1988, 126 soil samples were collected at SSI. Half of these soil samples have detected soil pollution greater than 1000 ppb total volatile organic chemicals (VOCs). The following chemicals were detected at the maximum concentrations listed below:

CHEMICAL	CONCENTRATION (PPB)
total xylenes	19,000,000
ethylbenzene	3,600,000
1,2-dichlorobenzene	2,900,000
1,1,1-trichloroethane	1,700,000
acetone	1,650,000

The highest concentrations are located directly beneath a concrete storage pad, referred to as the "hot spot" which extends about one acre. The soil is polluted from the ground surface to depths of about 20 feet. Acetone and other ketones may provide a solvent for dispersion of other organic chemicals that are transported more easily in the subsurface when dissolved in a ketone. These results indicate that hazardous wastes have been released at the SSI site.

7. **GROUNDWATER INVESTIGATION** Groundwater investigations were conducted between 1983 and 1986 by Applied Earth Consultants (AEC). They installed 56 monitoring wells, an interim extraction trench, and 2 interim recovery wells. In 1986, Groundwater Technology Inc. (GTI) installed a second interim extraction trench, 5 recovery wells, and 10 monitoring wells. In 1987, Todd Engineers Incorporated (Todd Engrs) installed 10 monitoring wells, 2 recovery wells, and another extraction trench. In 1988, Todd Engrs installed 16 more monitoring

wells.

Twenty distinct priority and nonpriority pollutants have been identified. The chemicals detected in groundwater in the highest concentrations and the most frequently are listed below:

CHEMICAL	CONCENTRATION (PPB)
acetone	6,600,000
2-butanone	730,000
cis-1,2-dichloroethene	70,000
dichloromethane	110,000
FREQUENTLY DETECTED:	
1,1-dichloroethane	2300
cis-1,2-dichloroethane	70,000
xylene	47,000
1,1,1-trichloroethane	58,000

Sampling results from four wells screened in Aquifer A and located along the southwest perimeter of the site indicated floating fuel product and dissolved concentrations of benzene, toluene, xylene, and ethylbenzene (BTX&E) over 10,000,000 ppb. This plume of BTX&E is believed to originate at the Chevron site.

Most of the high levels of pollution are located in Aquifer A and confined to the site. Offsite pollution in the down-gradient direction and along the southwest margin has not been well defined.

Groundwater pollution in Zone B/C includes 21 priority and nonpriority pollutants. The maximum concentration of total VOCs ever detected was 300,000 ppb and recently has reduced to 868 ppb. This pollution is reported to be due to cross-contamination during drilling, field sampling and laboratory analyses, and leakage along well casings. Most of the Zone B/C pollution is reported to have been remediated by purging the wells during an intensive sampling program.

Ten priority and nonpriority pollutants have been detected in Aquifer D/E. The chemicals detected in the highest concentrations include acetone (210 ppb), total xylenes (110 ppb), and ethylbenzene (16 ppb). Currently, only one well has detectable levels of VOCs (6 ppb). The pollution is also reported to be due to cross-contamination.

8. **INTERIM REMEDIAL ACTIONS** SSI currently operates a containment/reclamation system for the groundwater plume. The system includes 5 recovery wells and 3 extraction trenches.

Extracted polluted groundwater is currently being treated by an existing, onsite cooling tower. The reclaimed water is then reused onsite, while the residual water is disposed offsite as hazardous waste. SSI is in the process of constructing a Bio-Treatment System for the groundwater which uses biological degradation of pollutants as the treatment technology. Once constructed, treated water will be discharged into the sewer system. This system is expected to be fully permitted and operating by May, 1989.

In August of 1988, SSI conducted a pilot study on Steam Injection and Vacuum Extraction for soil remediation. SSI is designing a full scale application of this technology. This system is expected to be operating by August, 1989.

9. **WORKPLAN** SSI submitted a workplan for the completion of a RI/FS on February 7, 1989 and will submit a revised work plan by April 12, 1989. The final workplan will be approved by adoption of this order.

10. **SCOPE OF THIS ORDER** This order contains tasks for completion of groundwater pollution characterization, implementation and evaluation of interim remedial actions, preparation of an RI/FS report and a final remedial action plan (RAP). These tasks are needed to alleviate the threat to the environment posed by the migration of the groundwater plume of organic solvents and to provide a substantive technical basis for designing and evaluating the effectiveness of final cleanup alternatives.

11. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on July 21, 1982. The Basin Plan contains water quality objectives and beneficial uses for South San Francisco Bay and contiguous surface and groundwaters.

12. The existing and potential beneficial uses of the groundwater underlying and adjacent to the facility include:

    a. Industrial process water supply
    b. Industrial service water supply
    c. Municipal and Domestic water supply
    d. Agricultural water supply

13. The discharger has caused or permitted, and threatens to cause or permit waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.

14. This action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section

15321 of the Resources Agency Guidelines.

15. Onsite and offsite interim containment and cleanup measures need to be implemented to alleviate the threat to the environment posed by the continued migration of the groundwater plume of organic solvents and to provide a substantive technical basis for designing and evaluating the effectiveness of final cleanup alternatives.

16. The Board has notified the dischargers and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.

17. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the discharger shall cleanup and abate the effects described in the above findings as follows:

A. **PROHIBITIONS**

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.

2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

B. **SPECIFICATIONS**

1. The storage, handling, treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Section 13050(m) of the California Water Code.

2. The discharger shall conduct monitoring activities as needed to define the current local hydrogeologic conditions, and the lateral and vertical extent of soil and groundwater pollution. Should monitoring results show evidence of plume migration, additional plume characterization of pollutant extent may be required.

C. **PROVISIONS**

1. The discharger shall comply with Prohibitions A.1., A.2., and A.3., and Specifications B.1. and B.2. above, in accordance with the following time schedule and tasks:

COMPLETION DATE/TASK

a. 1) COMPLETION DATE: May 10, 1989

TASK: GROUNDWATER POLLUTION CHARACTERIZATION
Submit a technical report acceptable to the Executive Officer containing a proposal to define the horizontal and vertical extent of the onsite groundwater pollution in the B/C and D/E zones, and to define the horizontal and vertical extent of offsite groundwater pollution.

2) COMPLETION DATE: September 6, 1989

TASK: COMPLETION OF GROUNDWATER CHARACTERIZATION
Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 1.a.1).

b. 1) COMPLETION DATE: May 10, 1989

TASK: INTERIM REMEDIAL ACTIONS
Submit a technical report acceptable to the Executive Officer which contains an evaluation of the steam injection/vacuum extraction pilot test and a plan for and implementation time schedule for interim remediation by steam injection/vacuum extraction followed by biotreatment.

2) COMPLETION DATE: September 30, 1989

TASK: COMPLETION OF INTERIM REMEDIAL ACTIONS
Submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in the technical report submitted for Task 1.b.1).

c. COMPLETION DATE: 30 days after date information is requested

TASK: COMPLETION OF BASELINE PUBLIC HEALTH ASSESSMENT
Submit a technical report acceptable to the Executive Officer containing information requested by the Board's contractor for completion of the Baseline Public Health Assessment.

d. COMPLETION DATE: June 21, 1989

TASK: POTENTIAL CONDUIT STUDY
Submit a technical report acceptable to the Executive Officer identifying any potential conduit wells onsite and offsite within a one-half mile radius and including proposed closure plans for any such identified well.

e. COMPLETION DATE: July 19, 1989

TASK: ADMINISTRATIVE RECORD
Submit a proposal acceptable to the Executive Officer to compile and index an Administrative Record as outlined in EPA Interim Draft Guidance on Administrative Records.

f. COMPLETION DATE: July 19, 1989

TASK: PROJECT MANAGEMENT PLANS
Submit revised project management plans, including a Quality Assurance Project Plan, a Site Safety Plan, and a Sampling and Analysis Plan, consistent with CERCLA guidance.

g. COMPLETION DATE: October 18, 1989

TASK: REMEDIAL INVESTIGATION/FEASIBILITY STUDY AND REMEDIAL ACTION PLAN
Submit a technical report acceptable to the Executive Officer and pursuant to the revised workplan described in finding 9 containing the results of the remedial investigation; an evaluation of the installed interim remedial measures; a feasibility study evaluating alternative final remedial measures, including a final risk assessment. In addition, submit a separate technical report of the remedial action plan (RAP) that includes the recommended measures necessary to achieve final cleanup

objectives, and the tasks and time schedule necessary to implement the recommended remedial actions.

2. The submittal of technical reports evaluating immediate, interim and final remedial measures will include a projection of the cost, effectiveness, benefits, and impact on public health, welfare, and environment of each alternative measure. The remedial investigation and feasibility study shall be consistent with the guidance provided by Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300); Section 25356.1 (c) of the California Health and Safety Code; CERCLA guidance documents with reference to Remedial Investigation, Feasibility Studies, and Removal Actions; and the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California".

3. If the discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the discharger(s) shall promptly notify the Executive Officer and the Board may consider revision to this Order.

4. Technical reports on compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted monthly to the Board, according to the schedule below, commencing on May 17, 1989 and covering the previous month. On a monthly basis thereafter, these reports shall consist of a letter report that includes the following:

   a. Summary of work completed since submittal of the previous report and work projected to be completed by the time of the next report.

   b. Identification of any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles.

   c. Written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance, in the event of non-compliance with Provision C.2. or any other Specification or Provision of this Order. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of noncompliance on achieving compliance with the remaining requirements of this Order.

On a quarterly basis, technical reports should be submitted to the board according to the schedule below, commencing on July 15, 1989 and covering the previous quarter. The monthly report due July 15, 1989 and covering the month of June, may be incorporated into the quarterly report due July 15, 1989. This may be done for all subsequent quarterly reports. The quarterly reports shall include, but need not be limited to, the following information:

a. A summary of work completed since the previous quarterly report.

b. Results of water quality sampling analyses.

c. Water table and piezometric surface maps, based on the most recent water level measurements, for all affected water bearing zones.

d. A cumulative tabulation of all well construction details, groundwater levels, and chemical analyses results.

e. A cumulative tabluation of volume of extracted groundwater and chemical analysis for all site groundwater extraction wells.

f. Cross-sectional geological maps describing the hydrogeological setting of the site.

g. Appropriately scaled and detailed base maps showing the location of all monitoring wells and extraction wells, and identifying adjacent facilities and structures.

h. Identification and notification of problems as described in 4.ii. and 4.iii. for monthly reports.

SCHEDULE FOR REPORT SUBMITTAL:

Month	May	Jun	Jul	Aug	Sep	Oct
Quarter			2			3
Period	Apr	May	Ap-Jn	Jul	Aug	Jl-Sp
Due Date	5/15	6/15	7/15	8/15	9/15	10/15

6. All hydrogeological plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist or professional engineer.

7. All samples shall be analyzed by State certified labora-

tories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain Quality assurance/quality control records for Board review.

8. The discharger(s) shall maintain in good working order, and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.

9. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:

   a. Santa Clara Valley Water District
   b. Santa Clara County Health Department
   c. City of San Jose
   d. State Department of Health Services/TSCD
   e. U. S. Environmental Protection Agency, Region IX

   The Executive Officer may additionally require copies of correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order to be provided to the U.S. Environmental Protection Agency, Region IX, and to a local repository for public use.

10. The discharger(s) shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:

    a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.

    b. Access to copy any records required to be kept under the terms and conditions of this Order.

    c. Inspection of any monitoring equipment or methodology implemented in response to this Order.

    d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.

11. The discharger(s) shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order.

12. If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the discharger shall report such discharge to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-business hours. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to: the nature of waste or pollutant, quantity involved, duration of incident, cause of spill, Spill Prevention, Control, and Countermeasure Plan (SPCC) in effect, if any, estimated size of affected area, nature of effect, corrective measures that have been taken or planned, and a schedule of these activities, and persons/agencies notified.

13. The Board will review this Order periodically and may revise the requirements when necessary.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on April 19, 1989.

Steven R. Ritchie
Executive Officer